

MISCELLANEOUS NOTES

1. BURROW STRUCTURE IN RELATION TO HOARDING HABIT OF *RATTUS ARGENTIVENTER* IN TWO HABITATS

Rattus argentiventer is by far the most predominant rodent in rice fields in Indonesia. We studied the burrow structure and the extent of hoarding in upland areas (700 m above sea level) at Desa Cilember-Cisarua, Bogor and in lowland areas (150 m above sea level) at Desa Sindangbarang-Ciomas, Bogor. The data (Table 1) reveal that the main burrow entrance of *Rattus argentiventer* in upland areas is situated on dikes at a height of 38.55 cm, 38.2% of the dike height) whereas it is at 25.58 cm (at 46.5% of dike height) in lowland areas. The difference between the two is significant ($t 0.05$, d.f. 30). The average length of burrows of upland *R. argentiventer* is 64.66 cm whereas those in lowland areas measure 77.05 cm (Table 1). This difference in length of burrows in two habitats may be correlated with their hoarding behaviour.

R. argentiventer in lowland areas on an average hoards much more rice (42.8 g) than those in the upland areas (27.0 g, $t 0.01$, d.f. 24). This may be the reason why the burrows of rats living in lowland areas are longer.

Parameter	Lowland area	Upland area
Average (range)		
Height of the dike (cm)	55 (23-107)	11 (45-142)
Height of main burrow entrance compared with the height of the dike (%)	46.51 (20-82.76)	38.17 (16.67-92.54)
Length of burrows (cm)	77.05 (52-208)	64.66 (30-110)
Diameter of main burrow entrance (cm)	7.43 (5-10.5)	8.46 (5.5-11.5)
Food hoarded in the burrow (g)	42.79 (7-139)	27 (3-73)

July 4, 1991

IBNU MARYANTO

2. OCCURRENCE, STATUS AND BREEDING OF *PODICEPS CRISTATUS* (LINN.) AND *FULICA ATRA* LINN.

This note deals with four aspects relating to the great crested grebe *Podiceps cristatus*: status and distribution, breeding records in Kutch and Saurashtra (it perhaps breeds in other areas of Gujarat too, but so far no information is at hand), the behaviour of a breeding pair (studied at random), its interaction with other waterbirds — particularly the coot *Fulica atra* — and in addition the records of the coot nesting in Kutch.

Since *P. cristatus* was first recorded in Kutch in May (1965, *JBNHS* 62 : 551-53), we have regularly come across two to six birds mostly on irrigation dams, except in the years when these dams were either dry or had very little water owing to the paucity of rainfall or complete drought. A quarter of a century or so ago the great crested grebe was considered a very rare and irregular winter visitor to these parts. Neither Geoffrey Archer nor Dr Salim Ali (during his surveys in 1943-44 and subsequent visits over the years) had recorded it. This points to the likelihood that the populations of the

great crested grebe have increased in their distributional areas in, if not the whole, at least a part of the palaearctic region; and hence perhaps the spill-over has started coming fairly regularly to Kutch and Saurashtra. The position is likely to be the same in the neighbouring areas of Rajasthan and Sind in Pakistan, wherever conditions are favourable. However, this latter possibility could only be proved through systematic observations. Some of these birds which visit us stay on throughout the year and a few of them carry out their nesting activities. Thus this grebe can now be considered partly resident.

Towards the end of the hot weather of 1965 one of us (H.) was informed by the late K.S. Narsinhji, that he saw a half-grown young with a pair of *P. cristatus* in the Rudramata Dam (Bhuj environs). This was the first breeding record for this area. Taej Mundkur and Rishad Parvez reported the breeding of this waterbird in Saurashtra in 1984 (*JBNHS* 83: 429-431). NNB saw

small chicks early in 1989 on Dhonsa jheel (c. 6 km north-west of Bhuj). When we went there on 14 January, in connection with the Asian Waterbird Count, we came across a pair with four chicks which were somewhat smaller than the dabchick. The total number of great crested grebe present on the jheel was 9, including the chicks. The other adults present there showed no signs of breeding. There were quite a few duck species, other waterbirds and 400 coots which formed the majority among the birds present.

This jheel has been deepened and widened during recent years, having the deepest portion towards the high bank to the west, in the middle and extending a bit to the east. The rest of it is shallow. The circumference of Dhonsa jheel is c. 5 km and there are thin patches of reeds in the middle and a thick belt of reeds, broken here and there, all around the periphery.

The most interesting fact about nesting *P. cristatus* was that they bred quite outside the known breeding period — June to August. If the incubation period of this species of 28 days were to be considered, the nesting activities must have begun in November, and the full clutch of eggs of this pair is likely to have been completed by end of November. Later on, in the beginning of the hot weather, two other pairs were seen by NNB to be building nests in the thin patch of reeds in the middle of the jheel, but they appeared to be left unfinished at the time of our visit there again on 7 April. This time eight *P. cristatus* were present along with about six coots.

The latest breeding record (observation by NNB) of this grebe was in Vala khavas jheel, c. 5 km west of Bhuj, on the Mandvi road. Once again NNB was the first to make the discovery. All three of us went there on 30 July 1989 and found the *P. cristatus* pair in full nuptial plumage, with the male displaying in front of the female, facing her with small strands of reeds in his bill which he brought up from below the surface of the water every now and then. No response from the female was noticed.

The male was also seen to deposit some strands of reeds in a nest located on the edge of a thin patch of reeds. The female swam about a bit, or remained stationary, quite close by. On the evening of 5 August the female sat in the nest, and the male frequently dived down to collect nesting materials which were deposited in the nest, and the female arranged the same in the nest. H visited the jheel again on 11 August and found the almost completed nest abandoned. The pair had shifted to another site, again on the outside edge of a thin patch

of reeds near the main bank of the jheel to the north, overgrown with a thick impenetrable growth of *Prosopis chilensis*.

Here on the morning of 15 August, H found only the male carrying the nesting material and just dumping it on the nesting site; the female kept swimming some distance away. A pair of coots with small chicks was present nearby and another pair was building its nest in the middle of a patch of reeds next to the one in which the grebes were constructing theirs. One of the coots aggressively chased the male *P. cristatus* once as he approached his nest, and he in his turn, went for the coot with neck outstretched and wings partly raised, but did not drive home the attack.

After this, very often, when the male grebe swam away to collect nesting materials, a coot would come and take away strands of reeds from the nest under construction and deposit them in its own nest! It was interesting to study the interaction between these two species of waterbirds in the limited area of this small jheel (circumference of c. 2 km), which is surrounded by a wide belt of *Prosopis chilensis* particularly thick on the main bank to the north and east, and thinning out to the south and west. There are mainly three gaps through which the edge of the water could be approached, a narrow one near the overflow, another one a few metres away to the left (cattle and other livestock come down to drink water here), both situated on the eastern side, and the third gap on the west which has old worn-out steps leading to the water with some space to the left for animals to drink. Birdwatching can properly be done mostly through these gaps.

We theorised that the grebes gave up their first nest owing to the interference of the coots and this theory seemed to be correct; for on the next day (16th) H found the second nesting site abandoned too. This time the *P. cristatus* pair were actively bringing nesting materials which they just dumped on the site without climbing up into the reeds. The male brought long strands of reeds while the female was seen taking shorter lengths and also some other vegetation which was hardly visible through an 8 x 30 pair of binoculars at a distance of c. 175 m.

On 5 September H found the female sitting in the nest in the evening. The male swam around in the jheel and occasionally dived into the water to fetch nesting materials which were taken to the nest, and the female arranged them with her bill. No coots were observed near the site of the nest this time. On 11 September the male sat in the nest in the morning and the female

remained close by, almost touching the nest. NNB saw chicks on 17 September. The next day we saw the pair on the western side of the jheel and as the male preened the feathers of his back and wings, three very small chicks got momentarily pushed off into the water, but soon clambered back onto the male parent's back.

The female kept on swimming and constantly diving down for food (what looked like tadpoles) which was fed to the chicks, going close to the male who remained stationary, carrying the chicks on his back. The heads of a couple of chicks were clearly visible above the top edge of the wings of the male. The jheel was not visited till 27 October, when H went there. He found the pair of *P. cristatus* swimming apart. The male was accompanied by one young bird, the female by three. Thus four chicks were raised which at this time were slightly less than half grown. They were roughly a month-and-a half old, for they possibly hatched out between 12 and 17 September.

Apart from the above breeding records, NNB also noted the breeding of the great crested grebe on Devisar tank and Kansvati dam this year, which points to the breeding of this grebe on a wider scale in Kutch. There appears to be no special preference for large or small water bodies for nesting. The only prerequisite, as far as we have been able to study the breeding behaviour of this bird, is obviously deep water in which it can dive to obtain food and nesting material, and thin patches of reeds for nesting. The nests are located almost on the edges of the patches of reeds from which they could look all round. We also noticed that during the shared incubation the male was invariably seen on the nest in the day time (till late afternoon) while the female took over from the late afternoon, or evening, onwards.

The coot was purely a cold weather visitor till recently in Kutch, though sporadic breeding has been recorded in Saurashtra, the earliest being Dharmakumarsinhji's (*JBNHS* 46: 724), but at first NNB, and some days later both he and SNV (12 October 1986) saw a pair of *F. atra* with small chicks below Lair dam, c. 11 km east of Bhuj; and again at the same

location on 6 November 1988. Thereafter they noted a nest of a pair and one more pair with nearly fully grown young on 31 October 1989 in Ratnal village tank. The earlier breeding this year of c. 3 + pairs on Vala khavas jheel has already been mentioned in connection with the breeding pair of *P. cristatus* above. We also observed pairs of coots breeding at Devisar tank, thus proving that this waterbird has now established itself in limited numbers as a nesting species in Kutch too.

Large numbers of coot visiting us – outnumbering all other waterfowl – are now a common feature on all manner of waterbodies during the cold weather. Some of these birds stay behind, or are permanent residents, in suitable habitats. Though normally a docile bird, the coot develops an acute sense of territorial possessiveness and (contrary to Dharmakumarsinhji's observations) it attacks its own kind as well as other species that intrude into its domain.

It builds a nest the size of which is quite out of proportion to its own body-size. Owing to this its need for nesting materials is quite large, and so whenever opportunity comes its way, it does not hesitate to supplement its own collections by pilfering from other species' nests. This trait of *F. atra* was clearly seen by us at Vala khavas jheel. The nesting site preferred is inside a thin clump of reeds.

Besides *P. cristatus* and *F. atra* there were 4 ± pairs of the little grebe *Podiceps ruficollis* nesting at the Vala khavas jheel. It was interesting to note in the restricted area of this small water body that although these grebes also had an acute sense of territory, and quite actively defended their own boundaries against encroachment of their own kind, they never made any attempts to venture into the spheres of influence of the bigger waterbirds, which in their turn took no notice of these smaller birds.

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December 12, 1989

3. OCCURRENCE OF WHITE OR LONGTAILED TROPIC-BIRD *PHAETHON LEPTURUS* ON THE SOUTH-EAST COAST OF INDIA

Mandapam and its neighbouring islands (9°17'N; 79°8'E) form an important wintering ground for migratory waders and terns in south India. Because of its geographical situation (very close to Sri Lanka)

some interesting pelagic birds like the petrel, skua and noddy tern were recorded from this area (Balachandran in press). One more interesting record of a pelagic bird is now of the white tropic-bird *Phaethon lepturus* from